MAHATMA GANDHI UNIVERSITY of MEDICAL SCIENCES & TECHNOLOGY JAIPUR

# Syllabus

**B. Sc. in Hospital and Health Information Administration (B. Sc. H&HIA)**

**(6 SEMESTERS U.G. DEGREE PROGRAM)**

## 2023-24

**Recommended by Committee of Courses of Health Informatics at its meeting held on 03/03/2023 and approved by Academic Council at its meeting held on 28/04/2023.**

# NOTICE

1. **Amendments made by the university in rules/ regulation of the courses shall automatically apply.**
2. **The university reserves the right to make changes in the syllabus /books/ guidelines, fee-structure or any other information at any time without prior notice. The decision of the university shall be binding on all.**
3. **The jurisdiction of all court cases shall be Jaipur Bench of Hon'ble Rajasthan High Court only.**

**RULES & REGULATIONS OF**
**B. Sc. in Hospital and Health Information Administration (B. Sc. H&HIA)**
PROGRAM CODE: - **BSC1323**

**(6 SEMESTERS U.G. DEGREE PROGRAM)**

## 1. Introduction:

**Objectives/aims of the course:**

The course is designed to acquire sufficient knowledge of the prevailing system of scientific documentation with computerization, information search and retrieval; to get familiar with large databases dealing with various entities such as diseases, pathological conditions, symptoms, drugs & concepts such as data mining; to learn the classification & codification of drugs, diseases & their treatment; to acquire knowledge of the current trends in Health Information administration like health insurance, third party payers and document scanning etc.

**Program Outcome:**

On completion of this course, the students will be able to:

* Evaluate knowledge of practice relevant to health information management.
* Use formal research as a tool to evaluate and develop practice.
* Identify his/her professional learning and developmental needs.
* Work collaboratively with other health care professionals to achieve a quality service.
* Enable health care organization for better management of patient information
* Support health care administrators in routine activities
* Apply the knowledge obtained on specialized areas effectively in the health care system.
* Use interpersonal skills to facilitate effective communication with various health care professionals
* Develop health information standards according to the health care requirements
* Apply analytical and reflective skills to evaluate and improvise professional practice.
* Uphold legal ethical standards within his/ her profession

## 2. TITLE OF THE PROGRAM:

B. Sc. in Hospital and Health Information Administration (B. Sc. H&HIA)

## 3. DURATION OF THE COURSE:

Duration of the course: 3 Years (6 Semesters)

**4. MEDIUM OF INSTRUCTION:**

English shall be the medium of instruction for all the subjects of study and for examination of the course.

**5. ELIGIBILITY FOR ADMISSION:**

Pass in 12th class of 10 +2 of CBSE or equivalent with minimum aggregate of 45% marks in physics**,** chemistry and biology or mathematics, provided the candidate has passed in each subject separately.

Candidate should have completed the age of 17 years till 31st December of the respective admission year.

**OR**

Diploma in Health Information Management after Pass in 12th class of 10 +2 of CBSE or equivalent with minimum aggregate of 50% marks in physics chemistry and biology or Mathematics provided the candidate has passed in each subject separately.

**OR**

Candidates with two years diploma from a recognized Government Board in a subject for which the candidate desires to enroll, in the respective Allied Health Sciences course and shall have passed plus 12 [10+2] with Physics, Chemistry and Biology or mathematics, as principal subjects or candidates with 3 years diploma from a recognized Government Board in a subject for which the candidate desires to enroll, in the respective Allied Health Sciences course & should have studied Physics, Biology and Chemistry as principal subjects during the tenure of the course.

**6. PROCESS OF ADMISSION:**

Admission to B. Sc. in Hospital and Health Information Administration (B. Sc. H&HIA) Program shall be made on the basis of written entrance examination conducted for the purpose.

**7. RESERVATION POLICY:**

Reservation in admissions shall be applicable as per policy of the State Government.

**8. ENROLLMENT:**

Every candidate who is admitted to B.Sc. in Hospital and Health Information Administration Degree Program in Mahatma Gandhi Institute of Health Informatics shall be required to get himself/herself enrolled with the Mahatma Gandhi University of Medical Sciences & Technology (MGUMST) after paying the prescribed eligibility and enrolment fees.

A candidate shall deposit enrolment fees along with tuition fees at the time of his/her admission to the course. Such a candidate who fails to submit, to the college Principal, duly filled enrolment form along with original documents including migration certificate required for enrolment within prescribed period then after he/she shall pay late fee applicable at that time. No student will be allowed to appear in the university examination without his/her enrollment.

## 9. ATTENDANCE:

Minimum 75 % attendance is required in each Semester, both for theory and practical classes separately, student with deficient attendance will not be permitted to appear in university examination.

### 10. WORKING DAYS:

Each semester shall consist of approximately 120 working days including examination**.**

### 11. CONDUCTION OF THE UNIVERSITY EXAMINATION:

University semester examination shall be conducted twice in a year with an interval of six months. Even Semester examination shall be conducted after 6 months of odd semester examination.

### 12. ELIGIBILITY TO APPEAR FOR UNIVERSITY EXAMINATION

Student is required to have minimum 75% attendance (in theory and practical separately) /to make him/her eligible to Candidates failing in one or more, subject in a semester will be required to appear in their failing subject in the next examination of the same semester next year.

A candidate will have to clear all the subjects of First to Fifth semester before appearing at sixth semester university examination.

### 13. APPOINTMENT OF EXAMINER & PAPER SETTER

- All the examiners - Paper setters, Theory examination answer books evaluators, External and internal Examiners for Practical examinations shall be appointed by the president of the University from the panel submitted by Principal through concerned dean of faculty.
- Paper setters shall be external, who will assess answer sheets of their respective papers.
- Professor/ Assoc. Professor /Assistant Professor/Lecturer/Allied Health Professional having PG qualification and 03 years' teaching experience after PG in respective field is eligible to act as Internal/External examiner of theory/practical examination.

### 14. SCHEME OF EXAMINATION

The University Examination (End of Semester Examination or EOSE) for the Course shall be conducted semester wise at the end of every semester.

## i. Theory

(a) There shall be five Theory papers in each semester.

(b) Each Theory paper examination shall be of 3 hours duration and of maximum 70 marks.

(c) Internal assessment (Continuous Assessment or CA) shall be of 30 marks for each Theory Paper.

(d) The Paper Setter shall set the questions within the prescribed course of study of the concerned paper. There will be a set pattern of question papers duly approved by Academic Council.

Pattern of question papers (Attached)

(e) Passing Marks: A candidate will have to obtain aggregate 50% marks including internal assessment in each theory paper to pass.

## II. Practical and Viva-Voce Examination

(a) At the end of each semester there shall be practical and viva-voce examination of 200 marks. It shall be conducted after the Theory examination is over. A candidate will have to obtain at least 50% marks in practical and viva-voce examination

(b) practical and viva-voce examination shall be of 140 marks (Practical 100 marks + viva voce 40 marks) and internal assessment of 60 marks.

(b) The pattern of practical examination shall be as follows –

| Semester | Practical Marks | | | | | Practical Examiners |
|---|---|---|---|---|---|---|
| | EOSE (End of Semester Examination) | | | Total Marks | Min. Pass Marks | |
| | Practical | viva-voce | CA | | | |
| I to VI Each | 100 | 40 | 60 | 200 | 100 | One Internal & one External Examiner |

## III. Result

1. Candidate have to obtain at least 50% marks separately in each Theory paper including continuous assessment and a minimum of 50% marks in the practical examination including viva-voce for him to be declared pass.
2. A Candidate who has failed in a Paper (s) will reappear in respective paper(s) in next examination of the same semester next year.
3. Candidate who has failed in Practical examination will reappear in practical examination only in next practical examination of the same semester.

## IV. Supplementary Examination.

(a) There shall be a supplementary examination of only VI semester within two months of the declaration of the result of the main examination of VI Semester.

(b) Internal assessment marks obtained in the concerned failed paper(s)/practical shall be

carried forward for working out the result of next Theory paper(s) and/or practical examination.

(c) If A failing candidate, wants to improve his/her Internal assessment marks shall be allow to do so. In case he does appear for improvement or gets lesser marks in internal assessment, his earlier marks will be considered for working out the result of the failing subject.

## V. Promotion to the Next Semester

1. A candidate who has passed or failed in one or more subjects shall be promoted to respective next semester.

2. A candidate will be allowed to appear for the VI semester examination only when the backlog of all papers (theory papers and practical) of I semester to V semester exams including elective papers (if any) is cleared.

3. The student is required to clear all the End of Semester Examination within 6 years from the year of joining of the Program otherwise he/she will have to leave the course.

**B. Sc. in Hospital and Health Information Administration (B. Sc. H&HIA) Marks Distribution of Semester – I Examination**

| **Course/Paper Name** | **Course/Paper Code** | **Credits** | **Theory/ Practical/Viva** | | | |
|---|---|---|---|---|---|---|
| **CORE COURSES** | | | UE | IA | Total | Pass Marks |
| Basics of Healthinformatics | BSC1323S101T | 5 | 70 | 30 | 100 | 50 % aggregate including continuous assessment marks separately in theory and practical. |
| Basics of Clinical Science | BSC1323S102T | 5 | 70 | 30 | 100 | |
| Basics of Computer | BSC1323S103T | 5 | 70 | 30 | 100 | |
| **ELECTIVE COURSES (ANY TWO)** | | | | | | |
| Communicative English | BSC1323S104T | 4 | 70 | 30 | 100 | |
| Basics of Healthcare Information Technology | BSC1323S105T | 4 | 70 | 30 | 100 | |
| Medical Terminology | BSC1323S106T | 4 | 70 | 30 | 100 | |
| **PRACTICAL/ABILITY ENHANCEMENT COURSE** | | | | | | |
| Practical & Viva | BSC1323S107P | 7 | 140 | 60 | 200 | |
| **TOTAL** | **06** **(05 Theory Paper 01 Practical)** | **30** | **490** | **210** | **700** | |

## B. Sc. in Hospital and Health Information Administration (B. Sc. H&HIA) Marks Distribution of Semester – II Examination

| Course/Paper Name | Course/Paper Code | Credits | Theory/ Practical/Viva | | | |
|---|---|---|---|---|---|---|
| **CORE COURSES** | | | UE | IA | Total | Pass Marks |
| Basics of Management | BSC1323S201T | 5 | 70 | 30 | 100 | 50 % aggregate including continuous assessment marks separately in theory and practical. |
| Basics of Biostatistics | BSC1323S202T | 5 | 70 | 30 | 100 | |
| National Healthcare Delivery System | BSC1323S203T | 5 | 70 | 30 | 100 | |
| **ELECTIVE COURSES (ANY TWO)** | | | | | | |
| Innovation and IPR | BSC1323S204T | 4 | 70 | 30 | 100 | |
| Transcription and Telemedicine | BSC1323S205T | 4 | 70 | 30 | 100 | |
| Hospital Statistics | BSC1323S206T | 4 | 70 | 30 | 100 | |
| **PRACTICAL/ABILITY ENHANCEMENT COURSE** | | | | | | |
| Practical & Viva | BSC1323S207P | 7 | 140 | 60 | 200 | |
| **TOTAL** | **06** **(05 Theory Paper 01 Practical)** | **30** | **490** | **210** | **700** | |

## B. Sc. in Hospital and Health Information Administration (B. Sc. H&HIA) Marks Distribution of Semester – III Examination

| Course/Paper Name | Course/Paper Code | Credits | Theory/ Practical/Viva | | | |
|---|---|---|---|---|---|---|
| **CORE COURSES** | | | UE | IA | Total | Pass Marks |
| Data Mining | BSC1323S301T | 5 | 70 | 30 | 100 | 50 % aggregate including continuous assessment marks separately in theory and practical. |
| Basics of Medical Record management | BSC1323S302T | 5 | 70 | 30 | 100 | |
| Basics of Data Analysis and Visualization | BSC1323S303T | 5 | 70 | 30 | 100 | |
| **ELECTIVE COURSES (ANY TWO)** | | | | | | |
| Personality Development | BSC1323S304T | 4 | 70 | 30 | 100 | |
| Healthcare Services and its Application | BSC1323S305T | 4 | 70 | 30 | 100 | |
| Basic Life Support | BSC1323S306T | 4 | 70 | 30 | 100 | |
| **PRACTICAL/ABILITY ENHANCEMENT COURSE** | | | | | | |
| Practical & Viva | BSC1323S307P | 7 | 140 | 60 | 200 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **TOTAL** | **06** **(05 Theory Paper 01 Practical)** | **30** | **490** | **210** | **700** | |

## B. Sc. in Hospital and Health Information Administration (B. Sc. H&HIA) Marks Distribution of Semester – IV Examination

| **Course/Paper Name** | **Course/Paper Code** | **Credits** | **Theory/ Practical/Viva** | | | |
|---|---|---|---|---|---|---|
| **CORE COURSES** | | | UE | IA | Total | Pass Marks |
| Internet and Web Technology | BSC1323S401T | 5 | 70 | 30 | 100 | 50 % aggregate including continuous assessment marks separately in theory and practical. |
| Database Management System | BSC1323S402T | 5 | 70 | 30 | 100 | |
| Professionalism and Values | BSC1323S403T | 5 | 70 | 30 | 100 | |
| **ELECTIVE COURSES (ANY TWO)** | | | | | | |
| Medical Law and Ethics | BSC1323S404T | 4 | 70 | 30 | 100 | |
| Disaster Management | BSC1323S405T | 4 | 70 | 30 | 100 | |
| Yoga Practices | BSC1323S406T | 4 | 70 | 30 | 100 | |
| **PRACTICAL/ABILITY ENHANCEMENT COURSE** | | | | | | |
| Practical & Viva | BSC1323S407P | 7 | 140 | 60 | 200 | |
| **TOTAL** | **06** **(05 Theory Paper 01 Practical)** | **30** | **490** | **210** | **700** | |

## B. Sc. in Hospital and Health Information Administration (B. Sc. H&HIA) Marks Distribution of Semester – V Examination

| **Course/Paper Name** | **Course/Paper Code** | **Credits** | **Theory/ Practical/Viva** | | | |
|---|---|---|---|---|---|---|
| **CORE COURSES** | | | UE | IA | Total | Pass Marks |
| Quality Assurance | BSC1323S501T | 5 | 70 | 30 | 100 | 50 % aggregate including continuous assessment marks separately in theory and practical. |
| Artificial Intelligence in Healthcare | BSC1323S502T | 5 | 70 | 30 | 100 | |
| Basics of Machine Learning | BSC1323S503T | 5 | 70 | 30 | 100 | |
| **ELECTIVE COURSES (ANY TWO)** | | | | | | |
| Clinical Classifications and Coding Systems | BSC1323S504T | 4 | 70 | 30 | 100 | |
| Basics of Computer Graphics | BSC1323S505T | 4 | 70 | 30 | 100 | |
| Biomedical Instrumentation | BSC1323S506T | 4 | 70 | 30 | 100 | |
| **PRACTICAL/ABILITY ENHANCEMENT COURSE** | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Practical & Viva | BSC1323S507P | 7 | 140 | 60 | 200 | |
| **TOTAL** | **06** **(05 Theory Paper 01 Practical)** | **30** | **490** | **210** | **700** | |

**B. Sc. in Hospital and Health Information Administration (B. Sc. H&HIA) Marks Distribution of Semester – VI Examination**

| **Course/Paper Name** | **Course/Paper Code** | **Credits** | **Theory/ Practical/Viva** | | | |
|---|---|---|---|---|---|---|
| **CORE COURSES** | | | UE | IA | Total | Pass Marks |
| Introduction to Research | BSC1323S601T | 5 | 70 | 30 | 100 | 50 % aggregate including continuous assessment marks separately in theory and practical. |
| Hospital Accounting and Finance | BSC1323S602T | 5 | 70 | 30 | 100 | |
| Health Insurance and TPA | BSC1323S603T | 5 | 70 | 30 | 100 | |
| **ELECTIVE COURSES (ANY TWO)** | | | | | | |
| Human Resource management | BSC1323S604T | 4 | 70 | 30 | 100 | |
| Information Security | BSC1323S605T | 4 | 70 | 30 | 100 | |
| Project Management | BSC1323S606T | 4 | 70 | 30 | 100 | |
| **PRACTICAL/ABILITY ENHANCEMENT COURSE** | | | | | | |
| Practical & Viva | BSC1323S607P | 7 | 140 | 60 | 200 | |
| **TOTAL** | **06** **(05 Theory Paper 01 Practical)** | **30** | **490** | **210** | **700** | |

**15. REVALUATION / SCRUTINY:**

Revaluation of answer book(s) and security of the marks shall be permissible as per the policy of the university.

**16. TEACHING HOURS:**

Teaching hours shall be approximately 400 hours in every semester.

**17. AWARD OF DEGREE:**

The degree shall be awarded by the University only after receipt of Course completion certificate and NO dues from the Principal of the college.

**18. LETTER GRADES AND GRADE POINTS**

| LETTER GRADE | GRADE | PERCENTAGE OF MARKS |
|---|---|---|
| O (Outstanding) | 10 | 100 % |
| A+(Excellent) | 9 | 90-99.99 % |
| A (Very Good) | 8 | 80-89.99 % |
| B+(Good) | 7 | 70-79.99 % |
| B (Above Average) | 6 | 60-69.99 % |
| C(Average) | 5 | 50-59.99 % |
| F(Fail) | 0 | 0 Less than 50 % |
| Ab (Absent) | 0 | 0 Absent |

**19. Grades Qualifying for Pass:**

Theory and Practical Examination

**1. Minimum 5 Grade** in the university examination and **5 Grade** in internal assessment evaluated by the department are required to pass **who fails to obtain 5 Grade shall be declared failed.**

2. A student obtaining **Grade F** shall be considered **failed** and will be required to reappear in the examination.

3. Letter Grade **Ab (Absent)** will be showing the absent of the candidate in examination and will be required to reappear in the examination.

**Continuous Assessment:**

Continuous Assessment will be conducted two times in a semester. Continuous Assessment marks will consist of departmental examinations, assignments, departmental posting, and evaluations.

**End of Semester Examinations:**

a. Each theory paper examination shall be of 3 hours duration.

b. There will be Five theory papers in Each Semester as following-

**20. Weightage Distribution (%)**

| Item | Credit Weight (%) |
|---|---|
| **1.** Continuous Assessment | |
| Continuous Assessment Examinations | 10.00% |
| Assignment, Class participation/presentation, study records | 10.00% |
| Departmental Postings, case studies, project reports | 10.00% |
| **2.University Exam** | |
| 70.00% | |
| **Total** | **100%** |

**21. Authority to issue transcript**

The Controller of Examination of the University shall be the authority for issuing transcript after receiving the described fee from the candidate.

**22. Working Hours/Days**

| Duration | 3 Years (6 Semesters) |
|---|---|
| Working Days | 6 Days in A Week |
| Working Hours | 36 Hours in A Week |

## 23. Distribution of Courses Semester-Wise

| Semester | Core Course Component (CCC) | Elective Course Component (ECC) | Ability Enhance Component (AEC)/Practical | Total No. Of Courses/Papers |
|---|---|---|---|---|
| **Semester I** | **3** | **2** | **1** | **6** |
| **Semester II** | **3** | **2** | **1** | **6** |
| **Semester III** | **3** | **2** | **1** | **6** |
| **Semester IV** | **3** | **2** | **1** | **6** |
| **Semester V** | **3** | **2** | **1** | **6** |

| | | | | |
|---|---|---|---|---|
| **Semester VI** | **3** | **2** | **1** | **6** |
| **Total** | **18** | **12** | **6** | **36** |

### 24. Distribution of Courses in Each Semester

| Sr. No. | Type of Course | Numbers |
|---|---|---|
| **1** | **Core Course** | **3** |
| **2** | **Elective Course** | **2** |
| **Total** | **05 (Five)** | |

**25. Types of Courses in B. Sc. in Hospital and Health Information Administration (B. Sc. H&HIA): -**

**1. Core Course-**course designed under this category aim to cover the basics that a student is expected to imbibe in the discipline of B.Sc. in Bioinformatics. A course, which should compulsorily be studied by a candidate as a core requirement is termed as a Core Course.

**2. Elective Course-**it is a course which can be chosen from a pool of courses it is specific or specialized or advanced or supportive to the discipline of B. Sc. in Hospital and Health Information Administration (B. Sc. H&HIA). Students have to **CHOOSE ANY TWO COURSE IN EACHSEMSTER** from the pool of course given to that semester.

**3**. **Ability Enhancement Courses (AEC) /Practical:** The Ability Enhancement (AE) Courses or practical are the courses based upon the content that leads to Knowledge enhancement. They are skill-based and are aimed at providing hands-on-training, competencies, skills, etc.

## Computation of SGPA and CGPA

The UGC recommends the following procedure to compute the Semester Grade PointAverage (SGPA) and Cumulative Grade Point Average (CGPA):

i. The SGPA is the ratio of sum of the product of the number of credits with the grade points scored by a student in all the courses taken by a student and the sum of the number of credits of all the courses undergone by a student, i.e

$$\textbf{SGPA}\ (Si) = \sum(C_i \times G_i) / \sum C_i$$

where $C_i$ is the number of credits of the ith course and $G_i$ is the grade point scored by the student in the ith course.

ii. The CGPA is also calculated in the same manner taking into account all the courses undergone by a student over all the semesters of a program, i.e.

$$\textbf{CGPA} = \sum(Ci \times Si) / \sum Ci$$

where Si is the SGPA of the semester and Ci is the total number of credits in thatsemester.

iii. The SGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcripts.

# Illustration of Computation of SGPA and CGPA and Format for Transcripts

i. Computation of SGPA and CGPA

***Illustration*** for **SGPA**

| **Course** | **Credit** | **Grade letter** | **Grade point** | **Credit Point** (Credit x Grade |
|---|---|---|---|---|
| Course 1 | 3 | A | 8 | 3 X 8 = 24 |
| Course 2 | 4 | B+ | 7 | 4 X 7 = 28 |
| Course 3 | 3 | B | 6 | 3 X 6 = 18 |
| Course 4 | 3 | O | 10 | 3 X 10 = 30 |
| Course 5 | 3 | C | 5 | 3 X 5 = 15 |
| Course 6 | 4 | B | 6 | 4 X 6 = 24 |
| | 20 | | | 139 |

Thus, **SGPA =139/20 =6.95**

***Illustration*** for **CGPA**

| **Semester 1** | **Semester 2** | **Semester 3** | **Semester 4** |
|---|---|---|---|
| Credit : 20<br>SGPA:6.9 | Credit : 22<br>SGPA:7.8 | Credit : 25<br>SGPA: 5.6 | Credit : 26<br>SGPA:6.0 |
| | | | |

| | | | |
|---|---|---|---|
| | | | |
| **Semester 5** | **Semester 6** | | |
| Credit : 26<br>SGPA:6.3 | Credit : 25<br>SGPA: 8.0 | | |

Thus, **CGPA =** 20 x 6.9 + 22 x 7.8 + 25 x 5.6 + 26 x 6.0 + 26 x 6.3 + 25 x 8.0

_____ **= 6.73**

# Course Content

## SEMESTER I

| | |
|---|---|
| **Placement Semester** | Semester I |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | Basics of Health Informatics |
| **Course Code** | BSC1323S101T |
| **Course Type** | Core |
| **Credits** | 5 |
| **Hours per Semester** | 75 |

**Introduction to Health Informatics:** Definition, Domain, Sub-domain, Tools, Focus, Application, subject area, Aspects, & Functions Major theories such as System Theory, Information Theory, Learning Theory and Change Theory Health Informatics Literacy: Information, computer, and professional literacy.

**Health Information System:** Definition, Purposes, Structure (operation, telecommunication, system development / project management, application support, support, network, system administration), Roles and responsibilities (CIO, Director, Manager, Supervisor, Operator, Telecommunication technician, Telecommunication Operator, System Analyst, Programmer, Consultant), Technology infrastructure (Computers, Networks, Peripherals)

**Standards in Health Informatics:** Standard Coordinating Group, Group formed to developed standard, Professional Organization Supporting the Development of Technical Standards, Establishing International Standards. International Standard & Committee, International Standard, Identifier Standard, General Communication Standards, Specific Communication Standards, Content and Structure Standards, Clinical Data Representation, Standard for Software Application, Telecommunication Standard.

**Introduction to Health Informatics Applications:** Hospital Information System, Clinical Decision Support System, eHealth, mHealth, Telemedicine

**Impact of healthcare informatics on the socio-culture environment of healthcare Information:** Needs and Challenges in Healthcare Environment, Advances in Healthcare Informatics in Clinical Area, Changes in Professional Practice due to advances in healthcare informatics, Changes in Management Roles due to advances in healthcare informatics.

| | |
|---|---|
| **Placement Semester** | Semester I |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | Basics of Clinical Science |
| **Course Code** | BSC1323S102T |
| **Course Type** | Core |
| **Credits** | 5 |
| **Hours per Semester** | 75 |

**Human Anatomy and Physiology:** - Identify all anatomical structures of the human body • Understand the technical functions of various organs and systems of the body • Acquire knowledge about various body fluids, hormones and enzymes i. Integumentary system • Epithelium –• Cartilage – • Bone • Muscles • Neuron • Blood • Joints • Nasal Cavity, Larynx, Trachea, Thoracic Cage, Diaphragm, pleura, lungs Cardiovascular system • v. Blood and lymphatic system vi. Digestive system • vii. Urogenital viii. Endocrine system • Spinal cord, Brain, ix. Organs of special sense • Gross anatomy of eye; Gross anatomy of external, middle, and internal ear; Skin

**Introduction to Pathology -** Cell Injury, Cell Growth and Differentiation, • Inflammation • Infection, • Degeneration • Neoplasia • Blood groups, cross-matching, transfusions • Tests done on various body fluids and tissues • Infectious Disease •Disease of white cells and lymph nodes.

**Biochemistry** i. Chemistry of the human body fluids in health and diseases ii. Cerebrospinal fluid iii. Clotting mechanism of the blood, iv. Enzymes produced in the G.I. Tract, v. Vitamins, Hormones, Proteins and Non-proteins, vi. Nitrogenous substances, lipids, carbohydrates, vii. Electrolytes viii. Metabolism, acid-base balance, ix. Normal values and ranges of biochemistry investigations

**Microbiology:** I. Introduction to Microbiology, ii. Classification and characteristics of organisms, iii. Cultivation and identification of organisms, bacteria etc., iv. Disinfection, antiseptics, sanitation, v. Immunity, vi. Allergy vii. Pathogenic organisms, non-pathogenic organisms, virus and fungus.

**Introduction to pharmacology:** Route of Drug Administration • Pharmacokinetics and Pharmacodynamics • Drug Toxicity and Safety • Autonomic nervous system, including skeletal muscle relaxants • Introduction to ANS • Cholinergic drugs, Anticholinergic drugs, Neuromuscular blocking drugs and Adrenergic drugs • Adrenergic Receptor Antagonist ii. General and Local anesthetics iii. Hypnotics and Sedatives iv. Narcotic analgesics, narcotic antagonists v. non-narcotic analgesics, antipyretics vi. Psycho-pharmacological agents vii. Drugs acting on autonomic nervous system viii.Antihistamines ix. Blocking agents x. Respiratory pharmacology, cardiovascular pharmacology, GIT

| | |
|---|---|
| **Placement Semester** | Semester I |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | Basics of Computer |
| **Course Code** | BSC1323S103T |
| **Course Type** | Core |
| **Credits** | 5 |
| **Hours per Semester** | 75 |

**Introduction to computers**- types of computers-characteristics -Classification of digital computer systems-Microcomputers-minicomputers-supercomputers-functions and components of computers-Central processing unit.

**NUMBER SYSTEM**: Number System-Decimal number system-Binary number system-Complements-Gray code-ASCII code-Bits, Bytes and words-Memory unit-ROM, RAM, PROM, EPROM, EEPROM Auxiliary storage devices-Magnetic tape- hard disk, floppy disk-Input Devices-Output devices.

**COMPUTER NETWORKS**: Computer networks- Overview of a network- Communication Processors-Modems Message Switcher-Communication Media-Types of network-network topology-Introduction to Multimedia-Applications of Multimedia-Multimedia tools.

**INTERNET**: Internet and World wide web-Introduction-Internet access-Internet basics-Internet Protocols-Internet Addressing-WWW-HTML- HTML Tags-Web Browsers-Searching web- 56 Introduction to E-mail – Mailing Basics-E-mail Ethics-Advantages and disadvantages-Useful email services-Mailing list

| | |
|---|---|
| **Placement Semester** | Semester I |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | Communicative English |
| **Course Code** | BSC1323S104T |
| **Course Type** | Elective |
| **Credits** | 4 |
| **Hours per Semester** | 60 |

Identifying Common Errors in Writing with Reference to Articles and Prepositions Basic Writing Skills: Sentence Structures -Use of Phrases and Clauses in Sentences- Analysis of sentences- Transformation and Synthesis of sentences- Assertive to Negative and vice versa, Interrogative to Assertive/Negative and vice versa., Identifying Common Errors in Writing with Reference to Noun-pronoun Agreement and Subject-verb Agreement., Conversion of lexical words into meaningful paragraphs, Articulation according to IPA**,** Stress and Intonation.

Nature and Style of Sensible Writing- Defining- Describing Objects, Places and Events – Classifying- Providing Examples or Evidence., Writing Practices--Writing Introduction and Conclusion - Essay Writing- Précis Writing, Paragraph writing – Types, Structures and Features of a Paragraph - Creating Coherence- Organizing Principles of Paragraphs in Documents- Format of a Formal Letter-Writing Formal Letters eg., Letter of Complaint, Letter of Requisition, Job Application with Resume., Technical Reports- Introduction – Characteristics of a Report – Categories of Reports Formats- Structure of Reports (Manuscript Format) -Types of Reports - Writing a Report.

Communication and its Process, Communication in Healthcare, Communication and Patient’s Safety, Barriers, and Strategies of Communication.

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| **Placement Semester** | Semester I |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | Basics of Healthcare Information Technology |
| **Course Code** | BSC1323S105T |
| **Course Type** | Elective |
| **Credits** | 4 |
| **Hours per Semester** | 60 |

Fundamentals of Health Care Information Technology (HCIT): its applications, challenges, and impact on the healthcare industry, Introduction to Health Care Information Technology, Current trends, and challenges in HCIT implementation.

Electronic Health Records (EHRs): Understanding EHR systems and their benefits, EHR adoption and interoperability.

Health Information Exchange (HIE): Overview of HIE and its role in healthcare data sharing, Standards and protocols for secure data exchange, Privacy, and security concerns in HIE implementation.

Health Care Mobile Applications: Overview of health-related mobile apps and wearables

Computer Applications and Technologies in Healthcare

**Office Applications**

This section focuses on the concepts and operation of the main components of word processor, electronic spreadsheet, database management, and presentation software programs. Students will gain fundamental knowledge of a major software suite and learn skills that have practical application in real world situations.

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| **Placement Semester** | Semester I |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | Medical Terminology |
| **Course Code** | BSC1323S106T |
| **Course Type** | Elective |
| **Credits** | 4 |
| **Hours per Semester** | 60 |

1. Derivation of medical terms. 2. Define word roots, prefixes, and suffixes. 3. Conventions for combined morphemes and the formation of plurals. 4. Basic medical terms. 5. Form medical terms utilizing roots, suffixes, prefixes, and combining roots. 6. Interpret basic medical abbreviations/symbols. 7. Utilize diagnostic, surgical, and procedural terms and abbreviations related to the integumentary system, musculoskeletal system, respiratory system, cardiovascular system, nervous system, and endocrine system. concepts of body systems, components within individual systems, and relationships between systems, division of the body into body cavities and planes. Disease, disorders and dysfunctions, terminology of body systems to issues of disease, diagnostic and therapeutic tests, and procedures. Common sign and symptoms of disease conditions.

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**SEMESTER II**

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| **Placement Semester** | Semester II |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | Basics of Management |
| **Course Code** | BSC1323S201T |
| **Course Type** | Core |
| **Credits** | 5 |
| **Hours per Semester** | 75 |

**Introduction to Management**

Importance of Management, Definition of Management Characteristic features of Management

Roles of Management Role of a Manager Levels of Management and their functions

Process of Management Managerial skills Management and Administration Management – Science or an Art? Management – a profession?

**Principles of Management**

Meaning of principle Nature of Management principles Need for Management principles

Early Management approaches Scientific Management Administrative Management Human Relation Movement Modern Management Approaches Behavioral Approach Quantitative approach System approach Contingency approach

**Decision Making**

Meaning Types of decisions Steps in Rational decision-making Difficulties in decision-making

**Communication**

Importance of communication Purposes of communication Formal communication Forms of communication Informal communication The communication process. Barriers to communication Principles of effective communication, communication networks in a working group Checks on in-plant communication. Communication in Indian industries

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| **Placement Semester** | Semester II |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | Basics of Biostatistics |
| **Course Code** | BSC1323S202T |
| **Course Type** | Core |
| **Credits** | 5 |
| **Hours per Semester** | 75 |

**Statistics and Biostatistics**

- Definition of Statistics and Biostatistics
- Role of statistics in Health Sciences
- Variables: Qualitative & Quantitative, Continuous & Discrete, Dependent & Independent
- Scales of Measurement: Nominal, Ordinal, Interval, Ratio
- Organization of data
- Types of class intervals: Inclusive, Exclusive & Open ended
- Frequency Distribution: Measures of Central Tendency – Arithmetic Mean, Median and Mode for un-grouped and grouped data.
- Presentation of data: Bar diagram, Pie Diagram, Histogram, Frequency polygon, Frequency curve, and Line diagram.
- Measures of Variation: (Definition, computation, merits, demerits & application), Range, Inter Quartiles, Mean Deviation, Standard Deviation Co-efficient of Variation.
- Partition values: Quartiles, Percentiles
- Probability: Definitions of Classical Probability (Priori) and Frequency, Probability (Posteriori), Addition and Multiplicative Theorems of Probability
- Normal Distribution: Concept, Normal curve, Properties, Skewness and Kurtosis
- Probability Distribution: Binomial distribution, Poisson distribution and Normal distribution
- Sampling- Definition: Population and simple Sampling, Simple Random Sampling, Stratified Random Sampling, Systematic Random Sampling and Cluster Sampling
- Correlation and Regression: Scatter Diagram, Linear Correlation and Linear Regression Equation Test of Significance – Procedure Test of Significance for large samples and for small samples, Properties of correlation coefficient, Examples
- Research Process and Research Methodology
- Chi-square Test – Testing for association Misuse of Chi-square Test

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| **Placement Semester** | Semester II |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | National Healthcare delivery System |
| **Course Code** | BSC1323S203T |
| **Course Type** | Core |
| **Credits** | 5 |
| **Hours per Semester** | 75 |

**1. Introduction to healthcare delivery system**

a. Healthcare delivery system in India at primary, secondary and tertiary care
b. Community participation in healthcare delivery system
c. Health system in developed countries.
d. Private Sector
e. National Health Mission
f. National Health Policy
g. Issues in Health Care Delivery System in India

**2. National Health Programme- Background objectives, action plan, targets, operations, achievements, and constraints in various National Heath Programme**.

**3. Introduction to AYUSH system of medicine**

a. Introduction to Ayurveda.
b. Yoga and Naturopathy
c. Unani
d. Siddha
e. Homeopathy
f. Need for integration of various system of medicine.

**4. Health scenario of India- past, present, and future**

**5. Demography & Vital Statistics-**

a. Demography – its concept
b. Vital events of life & its impact on demography
c. Significance and recording of vital statistics.
d. Census & its impact on health policy

**6. Epidemiology**

a. Principles of Epidemiology, Natural History of disease, Methods of Epidemiological studies
b. Epidemiology of communicable & non-communicable diseases, disease transmission, host defense immunizing agents, cold chain, immunization, disease monitoring and surveillance.

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| **Placement Semester** | Semester II |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | Innovation and IPR |
| **Course Code** | BSC1323S204T |
| **Course Type** | Elective |
| **Credits** | 4 |
| **Hours per Semester** | 60 |

**Introduction to Innovation:** Definition and types of innovation**,** Importance of innovation in economic development**,** Innovation ecosystems and drivers.

**Overview of Intellectual Property Rights (IPR):** Meaning and significance of IPR**,** Forms of IPR: Patents, trademarks, copyrights, trade secrets**,** Balancing IPR with public interest and innovation diffusion

**Patents and Patenting Process:** Understanding patents and patentable subject matter**,** Criteria for patentability and novelty**,** Patent application, examination, and grant process**,** Trademarks and Copyrights**,** Meaning and purpose of trademarks**,** Copyrightable works and copyright protection**,** Fair use and infringement issues.

**Trade Secrets and Confidentiality:** Definition and characteristics of trade secrets, Protecting trade secrets and confidential information, non-disclosure agreements (NDAs)

**IPR Management and Commercialization:** Developing an IPR strategy**,** Licensing, technology transfer, and commercialization**,** Valuation, and monetization of intellectual property.

**Global IPR Landscape**

International treaties and agreements (e.g., TRIPS, WIPO), Challenges in enforcing IPR internationally, Cultural and ethical aspects of IPR in a global context

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| **Placement Semester** | Semester II |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | Transcription and Telemedicine |
| **Course Code** | BSC1323S205T |
| **Course Type** | Elective |
| **Credits** | 4 |
| **Hours per Semester** | 60 |

**Medical Transcription:**

- Basics of Medical Transcription
- Objectives of Medical Transcription
- Rules of Medical Transcription
- Advantages of Medical Transcription
- Division of medical words into their component parts
- Forms, Suffixes, Prefixes and Terminology
- Laboratory tests, Clinical procedures, and Abbreviations

**Telemedicine:**

- Classification of Telemedicine
- Technology of Telemedicine
- Objectives of Telemedicine
- Rules of Telemedicine
- Telemedicine Act
- Merits of Telemedicine
- Future Telemedicine plans
- Research

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| **Placement Semester** | Semester II |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | Hospital Statistics |
| **Course Code** | BSC1323S206T |
| **Course Type** | Elective |
| **Credits** | 4 |
| **Hours per Semester** | 60 |

Definition of hospital statistics and important Hospital Terms •Sources of Hospital Statistics – Registers, Medical Records and Daily Ward Census •Analysis of Hospital Services and Discharges ¬Important Rates, Ratio and Percentages with Formula •Uses and Limitations of Hospital Statistics •Hospital Statistics Reporting Crude Rates o Specific Rate o Prevalence, Incidence, Morbidity, fertility rates o Mortality Rates – Crude Death Rate, Specific Death Rates with respect to age , sex etc. Cause-of-death Rates; Infant Mortality Rates; Neonatal Mortality Rates o Post-Neonatal Mortality Rate or Late Infant Mortality Rate Collection of hospital statistical data: Birth, Death, fetal death, live birth and immature infants, reporting, determination of basic data, daily analysis of hospital service, discharge analysis procedure, cumulative method, monthly and annual reports, computation of percentage (ratios) inpatient census and bed occupancy rate (computerized and manual), presentation of hospital data. •Criteria of ill health • Classification of healthy and sick •Measurement of morbidity.

## SEMESTER III

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| **Placement Semester** | Semester III |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | Data Mining |
| **Course Code** | BSC1323S301T |
| **Course Type** | Core |
| **Credits** | 5 |
| **Hours per Semester** | 75 |

Introduction: Data Mining tasks – Data Mining versus Knowledge Discovery in Data bases – Relational databases – Data warehouses – Transactional databases – Object oriented databases – Spatial databases – Temporal databases – Text and Multimedia databases – Heterogeneous databases - Mining Issues – Metrics – Social implications of Data mining.

DATA PREPROCESSING Data Preprocessing: Why preprocess the data – Data cleaning – Data Integration – Data Transformation – Data Reduction – Data Discretization.

DATA MINING TECHNIQUES Data Mining Techniques: Association Rule Mining – The Apriori Algorithm – Multilevel Association Rules – Multidimensional Association Rules – Constraint Based Association Mining.

CLASSIFICATION &PREDICTION Classification and Prediction: Issues regarding Classification and Prediction – Decision Tree induction – Bayesian Classification – Back Propagation – Classification Methods – Prediction – Classifiers accuracy.

CLUSTERING TECHNIQUE Clustering Techniques: cluster Analysis – Clustering Methods – Hierarchical Methods – Density Based Methods – Outlier Analysis – Introduction to Advanced Topics: Web Mining, Spatial Mining and Temporal Mining.

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| **Placement Semester** | Semester III |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | Basics of Medical Record Management |
| **Course Code** | BSC1323S302T |
| **Course Type** | Core |
| **Credits** | 5 |
| **Hours per Semester** | 75 |

### Characteristics of quality Medical Records:

- Definition, Characteristics of 'Good' Medical Record , Values of 'Good' Medical Record to various users
- Required Characteristics of entries in medical Records ,Source-oriented, Problem-oriented, and Integrated medical records ,Medical Record Forms and their Content ,Standard Order of Arrangement of Medical Record forms ,Analysis of Medical Record-Quantitative & Qualitative ,Incomplete Record Control

### Medical Records for different patient encounters with health care facility

- Ambulatory Care Records {Emergency & Outpatient Records] ,Clinical Records in Long Term Care and Rehabilitation Facilities ,Mental Health Records

### Filing Methods, Storage, and Retention

- Numbering and Filing Systems ,Filing Storage- Microfilming and Disk Storage , Retention ,Registers & Indexes
- Record movement control & Tracking system

## Organizational Aspects of Medical Record Department/Services

- Policies , Functions ,Location, Space and Layout ,Equipment ,Forms Designing and Control
- Medical Records Flow and Processing

### Organizational Aspects of the Centralized Admitting Services

- Principles of Identification of a Patient ,Methods of Collection of Identification Data ,Types of Central Admitting Services ,Admitting Policies ,Procedure Outlines for Admissions ,Flow of Records following Admissions Advantages of good Admitting Policies and Procedures Pre-requisites for smooth & efficient functioning of the Centralized Admitting Services

### Medical Record Department Management

- Planning, Organizing, Directing and Controlling ,Personnel ,Principal Responsibilities and Duties of the Medical Record Administrator/Director ,Tools of Management in the Hands of the Medical Record Administrator/Director

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| **Placement Semester** | Semester III |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | Basics of Data Analysis and Visualization |
| **Course Code** | BSC1323S303T |
| **Course Type** | Core |
| **Credits** | 5 |
| **Hours per Semester** | 75 |

Introduction to Data Analysis and Visualization, Importance and applications of data analysis and visualization, Overview of the data analysis process, Introduction to data visualization tools and software,

Data Types and Data Cleaning, Different types of data (numerical, categorical, etc.),

Data cleaning and preprocessing techniques, Dealing with missing data and outliers,

Exploratory Data Analysis, Summary statistics and measures of central tendency, Data visualization techniques (histograms, box plots, scatter plots, etc.), Principles of effective data visualization, Graphical representations of data (bar charts, line graphs, pie charts, etc.), Visualizing multidimensional data, Data Visualization Tools, and Software,

Introduction to popular data visualization tools (e.g., Python, ggplot2, matplotlib).

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| **Placement Semester** | Semester III |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | Personality Development |
| **Course Code** | BSC1323S304T |
| **Course Type** | Elective |
| **Credits** | 4 |
| **Hours per Semester** | 60 |

Definition of Personality - Determinants of Personality- biological, psychological and socio- cultural factors. - Misconceptions and clarifications - Need for personality development

SELF-AWARENESS AND SELF MOTIVATION Self-analysis through SWOT and Johari window - Elements of motivation - Seven rules of motivation - Techniques and strategies for self-motivation - Motivation checklist and Goal 138 setting based on principle of SMART - Self motivation and life - Importance of self esteem and enhancement of self-esteem.

MEMORY AND STUDY SKILLS Definition and importance of memory - Causes of forgetting - How to forget (thought stopping), how to remember (techniques for improving memory) - The technique of passing exams-management of examination fear.

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| **Placement Semester** | Semester III |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | Healthcare Services and It's Application |
| **Course Code** | BSC023S305T |
| **Course Type** | Elective |
| **Credits** | 4 |
| **Hours per Semester** | 60 |

## Health and Disease

Concept, Definitions & Dimensions of health, Wellbeing, Determinants of health, Evolution of medicine, Public Health, Health indicators, Health service philosophies, Disease & causation, Natural history of disease, Disease control & prevention, Changing patterns of disease.

Medical sociology –Introduction Sociological perspective of health, illness, and healing. Institutional perspective and Organizational perspective.

## Public and Private Health Care Services in India

Evolution of public health systems in India (ancient, colonial & post-independence), Health Planning in India (Committees, Planning commission, Five-year plans, National Health Policies), Public health systems in India (Center, State, District & Village level), Rural development, corporate philosophy, Evolution and organization of private health systems in India and Current trends in private health care in India.

**WHO-** Objective, functions, **UNICEF**- objective and functions. Different Model of Healthcare-The Beveridge Model, The Bismarck Model, The National Health Insurance Model, The Out-of-Pocket Model. Brief Introduction of Health System of different countries: USA, UK, Canada, Australia, Sweden, and Germany.

## Population Health

Introduction to population studies, Issues of Indian society & culture, Nuptiality & Fertility, Reproductive health, Population and Development (policies, programs &evaluation), introduction to epidemiology (concept, terms, aims & uses), definition of epidemic, endemic, pandemic, sporadic. Prevalence and Incidence. Epidemiological methods- basic idea of Cohort study, Case Control study and RCT. Epidemiology of communicable diseases (TB, STDs, Diarrhea& HIV/AIDS) and Epidemiology of Non communicable diseases (CHD, Cancer, Diabetes, Hypertension &Obesity).

## Contemporary Issues in Health Services Management

National Health Policy; Reproductive, Maternal, Newborn, Child, and Adolescent Health (RMNCH+A) ; National Vector Borne Disease Control Program (NVBDCP).

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| **Placement Semester** | Semester III |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | Basic Life Support |
| **Course Code** | BSC1323S306T |
| **Course Type** | Elective |
| **Credits** | 4 |
| **Hours per Semester** | 60 |

- Adult BLS, Adult chain of survival Scene safety and assessment adult compressions, AED, and Bag Mask Device
- Successful Resuscitation teams
- Infant and Child BLS, Pediatric chain of survival, AED for Infants, and children less than 8 years age 6,
- Special considerations: Mouth to mouth breaths Breath with an advanced airway Opioid associated life-threatening emergency
- Adult, infant and child choking Relief of choking in a responsive adult or child Relief of choking in an unresponsive adult or child
- Practical demonstration of CPR, AED in adults and pediatric patients

## Semester IV

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| **Placement Semester** | Semester IV |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | Internet and Web Technology |
| **Course Code** | BSC1323S401T |
| **Course Type** | Core |
| **Credits** | 5 |
| **Hours per Semester** | 75 |

Internet Basic – Introduction to HTML – List Creating Table – Linking document – Frames - Graphics to HTML Doc – Style sheet – style sheet basic – Add style to document – Creating style sheet rules – Style sheet properties – Font – Text – List – Color and Background color – Box – Display properties.

JAVASCRIPT 15 Introduction to JavaScript – Advantage of JavaScript – JavaScript syntax – Data type – Variable – Array – Operator and Expression – Looping Constructor – Function – Dialog box.

DOC 15 JavaScript document object model – Introduction – object in HTML – Event Handling – Window object – Document object – Browser Object – Form Object – Navigator object – Screen object – Build in object – User defined object – Cookies.

ASP.NET 15 ASP.NET Languages structure – Page event, Properties& Compiler Directives. HTML server controls – Anchor, Tables, Forms, Forms, Files. Basic web server Controls – Label, Textbox, Button, Image, Links, Check & Radio button, Hyperlink. Data list Web server controls – Check box list, Radio button list, Drop down list, List box, and Data grid, Repeater.

e. MAIL ISSUES 15 Request and Response Objects, Cookies, Working with Data – OLEDB connection class, Command class transaction class, data adaptor class, data set class. Advanced Issues – Email, Application Security – Authentication, IP Address, Secure by SSL &Client Certificates.

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| **Placement Semester** | Semester IV |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | Database Management System |
| **Course Code** | BSC1323S402T |
| **Course Type** | Core |
| **Credits** | 5 |
| **Hours per Semester** | 75 |

Introduction and Basic Concepts - Structure of DBMS - Advantages & Disadvantages - Relational and their schemes integrity rules - Relational algebra: Basic operations additional operations, relational algebraic operations. Relational Calculus: Tuple Calculus domain calculus - Physical Implementation Issues What is database ,Data base System Applications, Purpose of Database Systems, View of Data – Data Abstraction – Instances and Schema – data Models – the ER Model – Relational Model – Other Models – Database Languages – DDL – DML – database Access for applications Programs – data base Users and Administrator – Transaction Management – data base Architecture – Storage Manager – the ,Normalization – Introduction, Non loss decomposition and functional dependencies, First, Second, and third normal forms – dependency preservation, Boyed/Codd normal form. Higher Normal Forms - Introduction, Multi-valued dependencies and Fourth normal form, join dependencies and Fifth normal form, Overview of the SQL Query Language – Basic Structure of SQL Queries, Set Operations, Aggregate Functions – GROUPBY – HAVING, Nested Sub queries, Views, Triggers.

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| **Placement Semester** | Semester IV |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | Professionalism and Values |
| **Course Code** | BSC1323S403T |
| **Course Type** | Core |
| **Credits** | 5 |
| **Hours per Semester** | 75 |

Introduction to Professional Ethics: Basic Concepts, Governing Ethics, Personal & Professional Ethics, Ethical Dilemmas, Life Skills, Emotional Intelligence, Thoughts of Ethics, Value Education, Dimensions of Ethics, Profession and professionalism, Professional Associations, Professional Risks, Professional Accountabilities, Professional Success, Ethics and Profession. Professional Practices in Engineering: Professions and Norms of Professional Conduct, Norms of Professional Conduct vs. Profession; Responsibilities, Obligations and Moral Values in Professional Ethics, Professional codes of ethics,

Work Place Rights & Responsibilities; Organizational Complaint Procedure, research misconduct distinguished from mistakes and errors, recent history of attention to research misconduct, the emerging emphasis on understanding and fostering responsible conduct, responsible authorship, reviewing & editing.

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| **Placement Semester** | Semester IV |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | Medical Law and Ethics |
| **Course Code** | BSC1323S404T |
| **Course Type** | Elective |
| **Credits** | 4 |
| **Hours per Semester** | 60 |

Medical ethics - Definition - Goal - Scope , Introduction to Code of conduct , Basic principles of medical ethics – Confidentiality ,Malpractice and negligence - Rational and irrational drug therapy , Autonomy and informed consent - Right of patients ,Care of the terminally ill- Euthanasia , Organ transplantation , Medico legal aspects of medical records – Medico legal case and type- Records and document related to MLC - ownership of medical records - Confidentiality Privilege communication - Release of medical information - Unauthorized disclosure - retention of medical records - other various aspects, Professional Indemnity insurance policy , Development of standardized protocol to avoid near miss or sentinel events ,Obtaining an informed consent.

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| **Placement Semester** | Semester IV |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | Disaster Management |
| **Course Code** | BSC1323S405T |
| **Course Type** | Elective |
| **Credits** | 4 |
| **Hours per Semester** | 60 |

Disaster and its type, Flood Draught, Cyclone, Geographical Disaster, Earthquake, Landslide, Avalanches, Volcanic Eruptions, Climatic Disaster-Heat and Cold Wave, Climate Change, Global Warming, Sea level Rise, Ozone Depletion. Disaster Preparedness, Disaster Prevention, Preparation and Mitigation, Disaster Information, System, Megha Satellite, Role of Various Agencies in Disaster Mitigation- National level and State levels, Disaster Response: Disaster Medicine, Rehabilitation, Reconstruction and Recovery. Disaster Response: Disaster Medicine, Rehabilitation, Reconstruction and Recovery.

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| **Placement Semester** | Semester IV |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | Yoga Practices |
| **Course Code** | BSC1323S406T |
| **Course Type** | Elective |
| **Credits** | 4 |
| **Hours per Semester** | 60 |

FOUNDATIONS OF YOGA: HISTORY

- Origin of Yoga, History and Development of Yoga; Etymology and Definitions,Misconceptions, Aim and Objectives of Yoga, True Nature and Principles of Yoga
- Introduction to Vedas, Upanishads, Prasthanatrayee and Purushartha Chatushtaya
- General introduction to Shad-darshanas with special emphasis on Samkhya and YogaDarshana, Yoga in Vedanta

EVOLUTION OF YOGA

Introduction to Epics - (Ramayana, Mahabharata), Yoga in Ramayana, Yoga in Mahabharata

- Introduction to Smritis and Yoga in Smritis; General introduction to Agamas and Tantra, Yoga in Tantra; Concepts of Nadi and Prana in Tantra, Kundalini, Effects of Kundalini Shaktiand Shatchakra Sadhana Yoga in Medieval Literature, Bhakti Yoga of Medieval Saints, Yoga in Narada Bhakti Sutras.
- Yoga in Modern Times: Yogic Traditions of Ramakrishna and Swami Vivekananda, Shri Aurobindo; Yoga traditions of Maharshi Ramana and Swami Dayanand Saraswati
- Yoga in Contemporary Times: Brief Introduction to important Yoga Paramparas (lineages) Yoga Parampara of Sri T. Krishnamacharya, Yoga Parampara of Swami Shivanada Saraswati, Swami Rama of Himalayas, Maharshi Mahesh Yogi and their contributions for thedevelopment and promotion of Yoga.

EVOLUTION SCHOOLS OF YOGA

- Introduction to Schools (Streams)of Yoga: Yoga Schools with Vedanta Tradition (Jnana, Bhakti,Karma and Dhyana), Yoga Schools with Samkhya-Yoga Tradition (Yoga of Patanjali)and Yoga Schools with Tantric Tradition ( Hatha Yoga, Swara Yoga and Mantra Yoga)

Elements of Yoga and Yogic practices in Jainism, Buddhism and Sufism

## SEMESTER V

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| **Placement Semester** | Semester V |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | Quality Assurance |
| **Course Code** | BSC1323S501T |
| **Course Type** | Core |
| **Credits** | 5 |
| **Hours per Semester** | 75 |

### Quality assurance and management -

- Concepts of Quality of Care
- Quality Improvement Approaches
- Standards and Norms
- Quality Improvement Tools
- Introduction to NABH guidelines

### Bio medical waste management and environment safety-

- Definition of Biomedical Waste
- Waste minimization
- BMW – Segregation, collection, transportation, treatment and disposal (including color coding)
- Liquid BMW, Radioactive waste, Metals / Chemicals / Drug waste
- BMW Management & methods of disinfection
- Modern technology for handling BMW
- Use of Personal protective equipment (PPE)
- Monitoring & controlling of cross infection (Protective devices)

### Infection prevention and control -

- Evidence-based infection control principles and practices [such as sterilization, disinfection, effective hand hygiene and use of Personal protective equipment (PPE)],
- Prevention & control of common healthcare associated infections,
- Components of an effective infection control program, and
- Guidelines (NABH and JCI) for Hospital Infection Control

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| **Placement Semester** | Semester V |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | Artificial Intelligence in Health Care |
| **Course Code** | BSC1323S502T |
| **Course Type** | Core |
| **Credits** | 5 |
| **Hours per Semester** | 75 |

**Artificial Intelligence**

What is Artificial Intelligence? , Philosophy of AI ,Goals of AI , History of AI , Contributes to AI?,

Programming Without and With AI, What is AI Technique? , Applications of AI ,What is Intelligence ,

Types of Intelligence, What is AI Technique?

Intelligence Composition, Difference between Human and Machine Intelligence, Research Areas of AI ,Search Algorithms ,Logic Systems ,Natural Language Processing ,Robotics ,

Uses of AI in Health Care.

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| **Placement Semester** | Semester V |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | Basics of Machine Learning |
| **Course Code** | BSC1323S503T |
| **Course Type** | Core |
| **Credits** | 5 |
| **Hours per Semester** | 75 |

**Introduction to Machine Learning**

- What is Machine Learning?

- Types of Machine Learning: Supervised, Unsupervised, Reinforcement Learning

- Machine Learning Applications and Real-world Examples

- Data Cleaning and Handling Missing Values

- Feature Scaling

- Data Transformation and Encoding

**Introduction to Neural Networks**

- Perceptrons and Multilayer Perceptrons (MLPs)

- Activation Functions

- Backpropagation Algorithm

Introduction to Natural Language Processing (NLP)

- Text Preprocessing

- Bag-of-Words and Word Embeddings

- Sentiment Analysis

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| **Placement Semester** | Semester V |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | Clinical Classification and Coding System |
| **Course Code** | BSC1323S504T |
| **Course Type** | Elective |
| **Credits** | 4 |
| **Hours per Semester** | 60 |

**Nomenclatures and Classification Systems:**

- Coding of final diagnosis and secondary diagnosis.
- Disease and operation nomenclatures, International Classification of Disease 10, International Classification of Disease – 9CM indexing of patient care data.
- Introduction and usage of International Classification of Disease in practical's
- International Classification of Diseases
- ICD-10, ICD-9 CM (Surgical Procedures)
- CPT – Current Procedural Terminology (Introduction)
- HCPCS – Healthcare Common Procedure Coding System (Introduction)
- ICD-10 - Alpha-numeric coding
- Volume 1 – Tabular list , Volume 2 – Instruction manual
- Volume 3 – Alphabetical Index
- Classification of Diseases according to Clinical Pertinence
- ICD-9CM (Procedure) coding – International Classification of Diseases – Clinical modification
- SNOMED-CT , Standard Nomenclatures of diseases (SNDO)
- Current Medical Information Terminology , Systematized Nomenclature of Pathology (SNOP)
- International Classification of Functioning, Disability and Health (ICF) , Case-Mix Classifications

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| **Placement Semester** | Semester V |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | Basics of Computer Graphics |
| **Course Code** | BSC1323S505T |
| **Course Type** | Elective |
| **Credits** | 4 |
| **Hours per Semester** | 60 |

**Introduction to Computer Graphics**

- Overview of computer graphics
- Applications of computer graphics in various industries
- History and evolution of computer graphics

**Image Representation and Manipulation**

- 2.1 Introduction to digital images
- 2.2 Image formats and color spaces
- 2.3 Image acquisition and sampling
- 2.4 Basic image manipulation techniques (resizing, cropping, filtering)

**2D Graphics, Raster Graphics,3D Graphics**

**Introduction to Computer Animation**

**Graphics Applications and Projects**

- Overview of real-world graphics applications (games, simulations, visualizations)
- Final project development (e.g., a simple 2D/3D game, interactive demo)

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| **Placement Semester** | Semester V |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | Biomedical Instrumentation |
| **Course Code** | BSC1323S506T |
| **Course Type** | Elective |
| **Credits** | 4 |
| **Hours per Semester** | 60 |

CT, MRI, X-Ray, USG,ECG, Multi-channel machine, Infusion Pump , Syringe Pump , Anesthesia Machine,

Heart-Lung Machine , IABP, ABG analysis machine, USG Doppler, Echocardiography, PFT machine, Ventilator, Cell saver machine, Diathermy, ACT machine, Defibrillator, Incubator-laboratories & amp; neonate, Sterilizer-Autoclave, ETO, Plasma, Laparo scopyse, Colono scopyset.

- Equipment's election guideline.
- Estimation of cost and planning.
- Purchase, installation, commissioning,
- Replacement and buy back policy.
- International and in digenous standards
- Maintenance Management
- 2. Types of maintenance systems.
- 3. Equipment history and documents.
- 4. Maintenance planning.
- Spares management.
- Replacement policy.
- Depreciation and loss of value.

## SEMESTER VI

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| **Placement Semester** | Semester VI |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | Introduction to Research |
| **Course Code** | BSC1323S601T |
| **Course Type** | Core |
| **Credits** | 5 |
| **Hours per Semester** | 75 |

**Introduction to Research:** Definition of research, Role of research in various field, Characteristics of good research, Types of research (basic, applied, exploratory, descriptive, etc.)

**Research Process:** Steps involved in the research process, Developing a research problem and research questions, Literature review: Importance and techniques, Formulating research hypotheses

**Research Designs:** Experimental, non-experimental, and quasi-experimental designs, Cross-sectional and longitudinal studies, Case studies and survey research, Qualitative research methods and their applications

**Data Collection Methods:** Surveys: Questionnaire design and administration, Interviews: Types, techniques, and ethical considerations, Observations: Participant and non-participant observations, Secondary data sources and their utilization

**Data Analysis and Interpretation:** Quantitative data analysis: Descriptive and inferential statistics, Qualitative data analysis: Coding, thematic analysis, and narrative interpretation, Integrating qualitative and quantitative data (mixed methods)

**Ethical Considerations in Research:** Informed consent and confidentiality**,** Institutional Review Board (IRB) approval**,** Addressing bias and ensuring research integrity

**Research Communication:** Writing a research report: Structure and components**,**Presenting research findings: Effective visual aids and presentation skills**,** Disseminating research through conferences and publications

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| **Placement Semester** | Semester VI |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | Hospital Accounting and Finance |
| **Course Code** | BSC1323S602T |
| **Course Type** | Core |
| **Credits** | 5 |
| **Hours per Semester** | 75 |

**Section A :** Fundamentals of Financial Accounting ,Accounting Process , Theoretical Framework ( meaning, scope and usefulness of Accounting; Generally Accepted Accounting Principles, Concepts and Conventions) , Capital and Revenue transactions- capital and revenue expenditures, capital and revenue receipts , Preparation of Ledger Accounts , Accounting for Depreciation (a) Depreciation Policy (b) Methods, computation and Accounting treatment , Balance Sheet (i) Preparation of Receipts and Payments Account; (ii) Preparation of Income and Expenditure Account (iii) Preparation of Balance Sheet

**Section B:** Fundamentals of Cost & Management Accounting, Fundamentals of Cost Accounting (a) Cost and Management Accounting – Generally Accepted Cost Accounting Principles (b) Accounting for Material cost (including Accounting of Inventory – LIFO, FIFO, Weighted Average Cost) (c) Accounting for Labor costs, Direct Expenses and Overheads 7.Fundamentals of Management Accounting

**Section C:** •National health spending •Paying for healthcare •Basics of Health Insurance •Different types of healthcare financing in India

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| **Placement Semester** | Semester VI |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | Health Insurance and TPA |
| **Course Code** | BSC1323S603T |
| **Course Type** | Core |
| **Credits** | 5 |
| **Hours per Semester** | 75 |

**Introduction to Health Insurance:** What & Why of Health insurance - Evolution and growth of Health insurance in India - Understanding the Health System in India - Constitutional provisions in areas of Public Health - Government Health Department at the Central, State, District & Locallevels - Infrastructure of the Health care system

**Health financing models and health financing in India:** Health financing models - Financing of Health in India - National Rural Health Mission - Challenges of access to Health care and Service Quality - Health insurance mechanisms & Financial Protection

**Health Insurance Products in India:** Types of Health Insurance Products in India -Hospitalization Indemnity products - Personal Accident products - Critical Illness product - Daily Hospital Cash benefit - Disease management covers - Outpatient covers - Investment products in health insurance & health savings components - Products for senior citizens - Micro-insurance products - International Coverage products - Other specialized health insurance products - wellness products.

**Social Health Insurance, Government and Mass Schemes [6 hours]:** Role of government in health care provisioning and financing - CGHS - ESIS - social health schemes - community based health insurance schemes - micro insurance schemes - Rural and Informal Sector reforms - respective coverages and operating models - monitoring and control mechanisms - Rural and Informal sector initiatives - New Universal Health Scheme for all

**Government health insurance scheme - RSBY:** Scheme details - cover - publicity and awareness - beneficiary enrolment - smart card operation - premium collection - provider networking - claims management - IT platform - data and analytics - fraud control

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| **Placement Semester** | Semester VI |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | Human Resource Management |
| **Course Code** | BSC1323S604T |
| **Course Type** | Elective |
| **Credits** | 4 |
| **Hours per Semester** | 60 |

management and leadership, motivations, team building, communication, productivity, performance appraisal, recruitment, job development, training, performance improvement, and revenue cycles

Performa productivity calculations

- Knowledge of labor/employment laws
- Awareness of human resources structure and operations
- Principles of human resources management
- Able to apply techniques/practices related to recruitment, supervision, retention, counseling, disciplinary action
- Knowledge of employment laws, labor laws (local and national)
- Plan workforce education and training programs
- Monitor relevant labor trends and market analysis
- Monitor and benchmark performance standards
- Plan professional development for self and others

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| **Placement Semester** | Semester VI |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | Information Security |
| **Course Code** | BSC1323S605T |
| **Course Type** | Elective |
| **Credits** | 4 |
| **Hours per Semester** | 60 |

Elements of Information Security, Information security supports the mission of the organization, Information security is an integral element of sound management , Information security protections are implemented so as to be commensurate with risk , Information security roles and responsibilities are made explicit, Information security responsibilities for system owners go beyond their own organization , Information security requires a comprehensive and integrated approach , Interdependencies of security controls , Other interdependencies , Information security is assessed and monitored regularly, Information security is constrained by societal and cultural factors,

Threats and Vulnerabilities: A Brief Overview, Examples of Adversarial Threat Sources and Events , Fraud and Theft, Insider Threat ,, Malicious Hacker , Malicious Code, Examples of Non-Adversarial Threat Sources and Events , Errors and Omissions , Loss of Physical and Infrastructure Support , Impacts to Personal Privacy of Information Sharing, Information Security Policy

Standards, Guidelines, and Procedures, Program Policy, Basic Components of Program Policy , Issue-Specific Policy , Example Topics for Issue-Specific Policy , Basic Components of Issue-Specific Policy, System-Specific Policy, Security Objectives, Operational Security Rules,-Specific Policy Implementation, Interdependencies, Cost Considerations,

Information Security Risk Management, Implement , Assess , Authorize, Monitor, Assurance, Authorization , Authorization and Assurance, Cost Considerations, Security Considerations in System Support and Operations , Support, Software Support , Configuration Management, Backups , Media Controls, Documentation, Maintenance, Interdependencies, Cost Considerations, Cryptography, Uses of Cryptography , Data Encryption, Integrity, Electronic Signatures, Implementation Issues , Selecting Design and Implementation Standards, Deciding between Software, Hardware, or Firmware Implementations , Managing Keys, Security of Cryptographic Modules, Applying Cryptography to Networks , Complying with Export Rules, Interdependencies

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| **Placement Semester** | Semester VI |
| **Name of the Program** | B.Sc. in Hospital & Health Information Administration |
| **Program Code** | BSC1323 |
| **Name of the Course** | Project Management |
| **Course Code** | BSC1323S606T |
| **Course Type** | Elective |
| **Credits** | 4 |
| **Hours per Semester** | 60 |

Project Management - Introduction, Meaning & Definition of project. Defining - Project Managers, Functional Managers & Executive's role. Project Manager as a planning agent, Project Driven Vs Non Project Driven organization, marketing in the Project Driven Organization, Programs and Projects, Product Vs Project Management, Project Life Cycles, program evaluation, project analysis & management. Project Planning- Identifying strategic project variables, Project planning, Statement of work, Project specifications, Milestone schedule, Work breakdown structure, Planning cycle, Management Control, categories of project. Project Feasibility - technical feasibility, marketing feasibility, socio-economic feasibility, managerial feasibility, financial feasibility and potential feasibility. UNIT – 4 Project Evaluation and Review techniques - Estimating activity time, Estimating total program time, PERT/CPM planning, Crash time, project sustainability, operations research. Project Management Functions - Controlling, Directing, Project authority, Team building, Leadership, communications, Project review meetings, Management policies and procedures, proposal writing. UNIT – 6 Pricing Estimating & Cost Control - Types of estimates & Pricing process, Labor distributions, Overhead rates, Material/Support costs, Pricing review, Budgeting for projects variance & earned value, Status reporting, project accounting.

**B. Sc. H&HIA Semester I**

**BSC1323S101T** **BOHI-I**

**First Semester**

**B. Sc. Hospital & Health Information Administration**

**Examination (Month/year)**

**PAPER-I**

## Basics of Health Informatics

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Explain Majors Theories of Health Informatics

B Describe about Health Information System.

C Describe Standards of Health Informatics.

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A Explain the role of CIO, Director, Manager in Project management.

B Describe Telecommunication Standard

C Describe the role of informatics in the health care industry.

**3. Short notes (Any four)** **4X5 = 20**

A. eHealth

B. mHealth

C. Telemedicine

D. CDSS

E. Health Informatics Literacy

**MODEL PAPER**

**B. Sc. H&HIA Semester I**

**BSC1323S102T** **BOCS-II**

**First Semester**

**B. Sc. Hospital &Health Information Administration**

**Examination (Month/year)**

**PAPER-II**

## Basics of Clinical Science

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Identify all anatomical structures of the human body.

B Describe Integumentary system.

C Describe Chemistry of the human body fluids in health and diseases

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A Describe Gross anatomy of external, middle and internal ear.

B What is Inflammation?

C Describe Infectious Disease.

**3. Short notes (Any four)** **4X5 = 20**

A. hormones.

B. carbohydrates.

C. Cardiovascular system.

D . Disease of white cells and lymph nodes.

E. Blood groups.

**MODEL PAPER**

**B. Sc. H&HIA Semester I**

**BSC1323S103T** **BOC-III**

**First Semester**

**B. Sc. Hospital & Health Information Administration**

**Examination (Month/year)**

**PAPER-III**

## Basics of Computer

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Functions and components of computers-Central processing unit.

B Describe Computer networks.

C Describe types of computers

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A Introduction to E-mail

B Internet basics Protocols?

C network topology

**3. Short notes (Any four)** **4X5 = 20**

A Introduction to Multimedia.

B. Characteristics of DBMS

C. Decimal number system.

D. Multimedia tools.

E. Storage devices

**MODEL PAPER**

**B. Sc. H&HIA Semester I**

**BSC1323S104T** **CE-IV**

**First Semester**

**B. Sc. Hospital & Health Information Administration**

**Examination (Month/year)**

**PAPER-IV**

## Communicative English

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Explain Communication Process in health care.

B Explain Organizing Principles of Paragraphs in Documents.

C Describe Nature and Style of Sensible Writing.

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A Describe Barriers of hospital communication.

B Discuss about strategies of communication.

C Explain the role of professional communication in health care industry.

**3. Short notes (Any four)** **4X5 = 20**

A Formal communication

B. Resume

C. Structure of Reports

D. Noun-pronoun

E. Verbal communication

**MODEL PAPER**

**B. Sc. H&HIA Semester I**

**BSC1323S105T** **BOHIT-V**

**First Semester**

**B. Sc. Hospital & Health Information Administration**

**Examination (Month/year)**

**PAPER-V**

## Basics of Healthcare Information Technology

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Discuss about HCIT?

B Describe about Current trends and challenges in HCIT implementation.?

C Describe EHR adoption and interoperability?

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A What is Health Information Exchange?

B Discuss about health data for decision-making and quality improvement?

C Describe Health Care Mobile Applications?

**3. Short notes (Any four)** **4X5 = 20**

A. EMR

B. HIS

C. CDSS

D. EMR

E. Information Technology

**MODEL PAPER**

**B. Sc. H&HIA Semester I**

**BSC1323S106T** **MT-VI**

**First Semester**

**B. Sc. Hospital & Health Information Administration**

**Examination (Month/year)**

**PAPER-VI**

## Medical Terminology

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Describe word roots, prefixes, and suffixes with example?

B Describe terms position, direction, and planes of the body and their applications.

C Explain the role of medical terminology in hospital management?

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A Explain the rule of word building in medical terminology?

B Mentioned procedures medical terms related to the integumentary system.?

C Explain diagnostic medical terms related to the nervous system.?

**3. Short notes (Any four)** **4X5 = 20**

A. Suffixes and prefixes medical terms of Cardiovascular system.

B. Laboratory medical terms of skin

C. Diagnostic & Procedure terms of Endocrine system

D. Structure and Function medical terms of Bones

E. Pharmacological medical terms of Reproductive system.

**MODEL PAPER**

**B. Sc. H&HIA Semester II**

**BSC1323S201T** **BOM-I**

**Second Semester**

**B. Sc. Hospital & Health Information Administration**

**Examination (Month/year)**

**PAPER-I**

## Basics of Management

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Explain the importance and Characteristic features of Management?

B Differentiate between terms Management & Administration.

C Explain the Levels of management system?

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A Explain Scientific Management & Administrative Management?

B Explain Barriers & Principles of effective communication?

C Explain Types of decisions and Difficulties in decision-making?

**3. Short notes (Any four)** **4X5 = 20**

A. Planning.

B. Organizing

C. Leading

D. Controlling

E. Accounting

**MODEL PAPER**

**B. Sc. H&HIA Semester II**

**BSC1323S202T** **BOBS-II**

**Second Semester**

**B. Sc. Hospital & Health Information Administration**

**Examination (Month/year)**

**PAPER-II**

**Basics of Biostatistics**

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Explain the Importance of Statistics and Biostatistics in healthcare?

B Define Variables and their types.

C Explain the Scales of Measurement?

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A Describe Classical Probability (Priori) and Frequency?

B Explain Addition and Multiplicative Theorems of Probability?

C Explain concept and properties of Normal Distribution?

**3. Short notes (Any four)** **4X5 = 20**

A. Sampling.

B. Correlation

C. Regression

D. Chi-square test

E. Cluster sampling.

**MODEL PAPER**

**B. Sc. H&HIA Semester II**

**BSC1323S203T** **NHS-III**

**Second Semester**

**B. Sc. Hospital & Health Information Administration**

**Examination (Month/year)**

**PAPER-III**

## National Healthcare System

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Explain healthcare delivery system in India at primary, secondary and tertiary care?

B Describe Community participation in healthcare delivery system**.**

C Explain the Issues in Health Care Delivery System in India?

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A Describe National Health Policy?

B Explain National Health Mission?

C Explain AYUSH system of medicine?

**3. Short notes (Any four)** **4X5 = 20**

A. Demography.

B. Vital Statstics

C. Census

D. Epidemiology

E. Immunization

**MODEL PAPER**

**B. Sc. H&HIA Semester II**

**BSC1323S204T** **I&IPR-IV**

**Second Semester**

**B. Sc. Hospital & Health Information Administration**

**Examination (Month/year)**

**PAPER-IV**

## Innovation and IPR

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Explain Importance of innovation in economic development?

B Describe Patents and Patenting Process.

C Explain the Meaning and significance of IPR?

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A Describe Trade Secrets and Confidentiality?

B Explain Valuation, and monetization of intellectual property?

C Explain Challenges in enforcing IPR internationally?

**3. Short notes (Any four)** **4X5 = 20**

A. Trademarks.

B. Copyrights

C. Balancing IPR

D. Non-disclosure agreements (NDAs)

E. Licensing

**MODEL PAPER**

**B. Sc. H&HIA Semester II**

**BSC1323S205T** **T&T-V**

**Second Semester**

**B. Sc. Hospital & Health Information Administration**

**Examination (Month/year)**

**PAPER-V**

## Transcription and Telemedicine

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

**1. Long Answer (Attempt any two)** **2X15 = 30**

A. Discuss about Medical Transcription?

B. Describe about Technology of Telemedicine?

C. Describe Clinical procedures?

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A. What is Telemedicine Research?

B. Discuss about Rules of Medical Transcription?

C. Describe Merits of Telemedicine in Health Care?

**3. Short notes (Any four)** **4X5 = 20**

A. Prefixes

B. Suffixes

C. Forms

D. EMR

E. Telemedicine Act

**MODEL PAPER**

**B. Sc. H&HIA Semester II**

**BSC1323S206T** **HS-VI**

**Second Semester**

**B. Sc. Hospital & Health Information Administration**

**Examination (Month/year)**

**PAPER-VI**

## Hospital Statistics

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Explain Importance and Sources of hospital statistics ?

B Describe Uses and Limitations of Hospital Statistics**.**

C Explain the Analysis and Discharges process of Hospital Services ?

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A Describe Measurement and Importance of morbidity ststictics.?

B Explain the role of hospital statistical data?

C Explain inpatient census and bed occupancy rate?

**3. Short notes (Any four)** **4X5 = 20**

A. Bed occupancy rate.

B. Bed turnover rate

C. Hospital Census

D. Crude rate

E. Hospital Indicators

**MODEL PAPER**

**B. Sc. H&HIA Semester III**

**BSC1323S301T** **DM-I**

**Third Semester**

**B. Sc. Hospital & Health Information Administration**

**Examination (Month/year)**

**PAPER-I**

## Data Mining

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Explain Data Preprocessing. Why is the preprocessing of data important?

B Describe Data Reduction and Data Discretization**.**

C Explain the role of Data cleaning and Data Integration?

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A Describe Measurement and Importance of morbidity statistics.?

B Explain the role and importance of Data Clustering?

C Explain Data classification and Data prediction?

**3. Short notes (Any four)** **4X5 = 20**

A. Bayesian Classification.

B. Data Mining

C. Spatial databases

D. Temporal mining

E. Decision Tree induction

**MODEL PAPER**

**B. Sc. H&HIA Semester III**

**BSC1323S302T** **BOMRS-II**

**Third Semester**

**B. Sc. Hospital & Health Information Administration**

**Examination (Month/year)**

**PAPER-II**

## Basics of Medical Record Management

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Explain the importance of medical records in hospitals?

B Describe the Characteristics of 'Good' Medical Record**.**

C Explain the role of Medical Record Officer in Hospitals?

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A Describe Required Characteristics of entries in medical Records.?

B Explain Source-oriented and Problem-oriented medical record?

C Explain Analysis of Medical Record-Quantitative & Qualitative?

**3. Short notes (Any four)** **4X5 = 20**

A. Ambulatory Care Records.

B. Numbering and Filing Systems

C. MLC Records

D. Central admitting services

E. Retention

**MODEL PAPER**

**B. Sc. H&HIA Semester III**

**BSC1323S303T** **BODA&V-III**

**Third Semester**

**B. Sc. Hospital & Health Information Administration**

**Examination (Month/year)**

**PAPER-III**

**Basics of Data Analysis and Visualization**

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Explain Data Analysis and Visualization?

B Describe the data analysis process.

C Explain Importance and applications of data analysis and visualization?

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A Describe statistics and measures of central tendency.?

B Explain Data cleaning and preprocessing techniques?

C Explain Principles of effective data visualization?

**3. Short notes (Any four)** **4X5 = 20**

A. Scatter plots.

B. Python

C. ggplot2

D. matplotlib

E. Multidimensional data

**MODEL PAPER**

**B. Sc. H&HIA Semester III**

**BSC1323S304T** **PD-IV**

**Third Semester**

**B. Sc. Hospital & Health Information Administration**

**Examination (Month/year)**

**PAPER-IV**

## Personality Development

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Explain the role of personality in health care organization?

B Describe the need for personality development.

C Explain biological and psychological factors of personality?

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A Describe self-awareness and self-motivation.?

B Explain Seven rules of motivation?

C Explain Techniques and strategies for self-motivation?

**3. Short notes (Any four)** **4X5 = 20**

A. Self-esteem.

B. SMART

C. SWOC

D. Memory

E. Management

**MODEL PAPER**

**B. Sc. H&HIA Semester III**

**BSC1323S305T** **HS&A-V**

**Third Semester**

**B. Sc. Hospital & Health Information Administration**

**Examination (Month/year)**

**PAPER-V**

## Healthcare Services and It's Application

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

**1. Long Answer (Attempt any two)** **2X15 = 30**

A. Discuss about public health systems in India.

B. Describe about Health Planning in India.

C. Describe National Health Policy?

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A. What are Determinants of health.

B. Discuss about The Bismarck Model.

C. Describe Rural Health development.

**3. Short notes (Any four)** **4X5 = 20**

A. WHO

B. UNICEF

C. NVBDCP

D. CANCER

E. Hypertension

**MODEL PAPER**

**B. Sc. H&HIA Semester III**

**BSC1323S306T** **BLS-VI**

**Third Semester**

**B. Sc. Hospital & Health Information Administration**

**Examination (Month/year)**

**PAPER-VI**

## Basic Life Support

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

**1. Long Answer (Attempt any two)** **2X15 = 30**

A. Explain the role of basic life support in health care.

B. Explain rules and regulations of basic life support.

C. Describe the importance of successful resuscitation teams.

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A. Explain BLS process of adult compression.

B. Discuss about Child basic life support.

C. Describe special consideration of advanced BLS.

**3. Short notes (Any four)** **4X5 = 20**

A. Choking

B. Bag mask device

C. CPR

D. Infant choking

E. AED

**MODEL PAPER**

**B. Sc. H&HIA Semester IV**

**BSC1323S401T** **I&WT-I**

**Fourth Semester**

**B. Sc. Hospital & Health Information Administration**

**Examination (Month/year)**

**PAPER-I**

## Internet and Web Technology

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

**1. Long Answer (Attempt any two)** **2X15 = 30**

A. Explain the role of Internet in health care organization.

B. Explain the concept of HTML.

C. Explain JavaScript document object model.

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A. Explain the objects of data handling.

B. what are the advantages of JavaScript.

C. Describe ASP.NET language structure.

**3. Short notes (Any four)** **4X5 = 20**

A. e-Mail

B. Hyperlink

C. IP address

D. Application security

E Client Certificates

**MODEL PAPER**

**B. Sc. H&HIA Semester IV**

**BSC1323S402T** **DBMS-II**

**Fourth Semester**

**B. Sc. Hospital & Health Information Administration**

**Examination (Month/year)**

**PAPER-II**

## Database Management System

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

**1. Long Answer (Attempt any two)** **2X15 = 30**

A. Explain the Concepts & Structure of DBMS.

B. Explain the Advantages & Disadvantages of DBMS.

C. Explain relational algebraic operations.

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A. Explain Data base System Applications.

B. Describe the purpose of database system.

C. Describe Database Architecture model.

**3. Short notes (Any four)** **4X5 = 20**

A. Normalization

B. SQL

C. Set Operations

D. Triggers

E ER model

**MODEL PAPER**

**B. Sc. H&HIA Semester IV**

**BSC1323S403T** **P&V-III**

**Fourth Semester**

**B. Sc. Hospital & Health Information Administration**

**Examination (Month/year)**

**PAPER-III**

## Professionalism and Values

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

**1. Long Answer (Attempt any two)** **2X15 = 30**

A. Explain the basic concepts of professional ethics.

B. Explain the role of governing ethics in healthcare.

C. Explain Life skills of professional ethics.

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A. Explain the dimensions of ethics.

B. Describe the thoughts of ethics.

C. Differentiate between profession and professionalism.

**3. Short notes (Any four)** **4X5 = 20**

A. Code of Conduct

B. Organizational complaint procedure

C. Research misconduct

D. Workplace Rights & Responsibilities

E Norms of Professional Conduct vs. Profession

**MODEL PAPER**

**B. Sc. H&HIA Semester IV**

**BSC1323S404T** **ML&E-IV**

**Fourth Semester**

**B. Sc. Hospital & Health Information Administration**

**Examination (Month/year)**

**PAPER-IV**

## Medical Law and Ethics

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

**1. Long Answer (Attempt any two)** **2X15 = 30**

A. Explain the Goal and Scope of medical ethics.

B. Explain the Basic principle of medical ethics.

C. Explain the Rights of patients.

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A. Explain Confidentiality Privilege communication in medical ethics.

B. Describe Medico legal cases.

C. Explain the procedure of Organ transplantation.

**3. Short notes (Any four)** **4X5 = 20**

A. Confidentiality

B. Malpractice and negligence

C. Rational and irrational drug therapy

D. Care of the terminally ill- Euthanasia

E. Informed consent

**MODEL PAPER**

**B. Sc. H&HIA Semester IV**

**BSC1323S405T** **DM-V**

**Fourth Semester**

**B. Sc. Hospital & Health Information Administration**

**Examination (Month/year)**

**PAPER-V**

## Disaster Management

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

**1. Long Answer (Attempt any two)** **2X15 = 30**

A. Discuss about disaster Management in India.

B. Describe about Triage Fire Hazards.

C. Describe Disaster management Rules.

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A. What are Determinants of health.

B. Discuss about Disaster cycle.

C. Describe Assessment of Disaster Preparedness

**3. Short notes (Any four)** **4X5 = 20**

A. Fire Manual Guideline

B. Fire Fighting

C. Mass Casualties Management

D. Manmade disasters

E. Natural disasters

**MODEL PAPER**

**B. Sc. H&HIA Semester IV**

**BSC1323S406T** **YP-VI**

**Fourth Semester**

**B. Sc. Hospital & Health Information Administration**

**Examination (Month/year)**

**PAPER-VI**

## Yoga Practices

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

**1. Long Answer (Attempt any two)** **2X15 = 30**

A. Explain the importance and Origin of Yoga.

B. Explain the Etymology of Yoga.

C. Describe the History and Development of Yoga.

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A. Explain Aim and Objectives of Yoga.

B. Discuss about Misconceptions of yoga.

C. Describe True Nature and Principles of Yoga.

**3. Short notes (Any four)** **4X5 = 20**

A. Evolution of yoga

B. Vedas, Upanishads, Prasthanatrayee and Purushartha Chatushtaya

C. Yoga in Ramayana

D. Yoga of Patanjali

E. Yogic practices in Jainism, Buddhism and Sufism

**MODEL PAPER**

**B. Sc. H&HIA Semester V**

**BSC1323S501T** **QA-1**

**Fifth Semester**

**B. Sc. Hospital & Health Information Administration**

**Examination (Month/year)**

**PAPER-1**

**Quality Assurance**

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

**1. Long Answer (Attempt any two)** **2X15 = 30**

A. Discuss about Concepts of Quality of Care.

B. Describe about quality standards and norms .

C. Describe about bio medical waste management and environment safety .

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A. What are Determinants of health.

B. Discuss Biomedical waste management system.

C. Describe Assessment of Quality indicators.

**3. Short notes (Any four)** **4X5 = 20**

A. NABH

B. Radioactive waste

C. JCI

D. Infection prevention and control

E. PPE

**MODEL PAPER**

**B. Sc. H&HIA Semester V**

**BSC1323S502T** **AIHC-II**

**Fifth Semester**

**B. Sc. Hospital & Health Information Administration**

**Examination (Month/year)**

**PAPER-2**

## Artificial Intelligence in Health Care

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

**1. Long Answer (Attempt any two)** **2X15 = 30**

A. Discuss about Philosophy of Artificial Intelligence.

B. Describe about Goals of Artificial Intelligence.

C. Describe about techniques of Artificial Intelligence .

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A. What are the techniques of Artificial Intelligence.

B. Discuss different types of Artificial Intelligence..

C. Difference between Human and Machine Intelligence.

**3. Short notes (Any four)** **4X5 = 20**

A. Research Areas of AI

B. Logic Systems

C. Robotics

D. Natural Language Processing

E. Search Algorithms

**MODEL PAPER**

**B. Sc. H&HIA Semester V**

**BSC1323S503T** **BOML-III**

**Fifth Semester**

**B. Sc. Hospital & Health Information Administration**

**Examination (Month/year)**

**PAPER-III**

## Basics of Machine Learning

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

**1. Long Answer (Attempt any two)** **2X15 = 30**

A. Discuss about Machine Learning Applications.

B. Explain the role of Machine Learning in health care

C. Describe about Data Transformation and Encoding.

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A. What are the feature scaling of machine learning.

B. Discuss about Data Cleaning and Handling Missing Values.

C. Difference between Supervised and Unsupervised ML.

**3. Short notes (Any four)** **4X5 = 20**

A. Perceptrons and Multilayer Perceptrons (MLPs)

B. Backpropagation Algorithm

C. Natural Language Processing (NLP)

D. Sentiment Analysis

E. Text Preprocessing

**MODEL PAPER**

**B. Sc. H&HIA Semester V**

**BSC1323S504T** **CC&CS-IV**

**Fifth Semester**

**B. Sc. Hospital & Health Information Administration**

**Examination (Month/year)**

**PAPER-IV**

## Clinical Classification and Coding System

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

**1. Long Answer (Attempt any two)** **2X15 = 30**

A. Discuss Nomenclatures and Classification coding systems.

B. Explain Coding of final diagnosis and secondary diagnosis.

C. Describe about 9CM indexing of patient care data.

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A. What is the role of coding system in healthcare.

B. Discuss about Diagnostic and procedure coding template.

C. explain the role of insurance companies in medical coding.

**3. Short notes (Any four)** **4X5 = 20**

A. ICD-10

B. SNOMED-CT

C. Systematized Nomenclature of Pathology

D. CPT

E. ICF

**MODEL PAPER**

**B. Sc. H&HIA Semester V**

**BSC1323S505T** **BOCG-V**

**Fifth Semester**

**B. Sc. Hospital & Health Information Administration**

**Examination (Month/year)**

**PAPER-V**

## Basics of Computer Graphics

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

**1. Long Answer (Attempt any two)** **2X15 = 30**

A. Discuss about computer graphics

B. Explain about evolution of computer graphics.

C. Describe Introduction to digital images.

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A. What are Applications of computer graphics in various industries?

B. Discuss about image manipulation techniques.

C. Describe Assessment of real-world graphics.

**3. Short notes (Any four)** **4X5 = 20**

A. Visualizations

B. Image acquisition

C. Interactive demo

D. Digital images

E. 2D/3D game

**MODEL PAPER**

**B. Sc. H&HIA Semester V**

**BSC1323S506T** **BI-VI**

**Fifth Semester**

**B. Sc. Hospital & Health Information Administration**

**Examination (Month/year)**

**PAPER-VI**

## Biomedical Instrumentation

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

**1. Long Answer (Attempt any two)** **2X15 = 30**

A. Explain the importance of biomedical instrumentation in hospitals.

B. Explain Equipment's election guideline.

C.Explain the Purchase, installation, commissioning of biomedical instrumentation.

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A. Explain the Replacement and buyback policy.

B. Discuss International and in digenous standards.

C. Describe Maintenance Management.

**3. Short notes (Any four)** **4X5 = 20**

A. Spares management

B. Replacement policy

C. Depreciation and loss of value

D. Colono scopyset.

E. Multi-channel machine

**MODEL PAPER**

**B. Sc. H&HIA Semester VI**

**BSC1323S601T** **IR-I**

**Sixth Semester**

**B. Sc. Hospital & Health Information Administration**

**Examination (Month/year)**

**PAPER-I**

## Introduction to Research

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

**1. Long Answer (Attempt any two)** **2X15 = 30**

A. Describe about role of research in various field?

B. Describe about Types of research?

C. Describe about Qualitative research methods?

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A. Describe Data Collection Methods.

B. What are the Secondary data sources and their utilization?

C. What are the Principle of Research?

**3. Short notes (Any four)** **4X5 = 20**

A. Institutional Review Board

B. Research ethical considerations

C. Case studies

D. Formulating research hypotheses

E. Survey

**MODEL PAPER**

**B. Sc. H&HIA Semester VI**

**BSC1323S602T** **HA&F-II**

**Sixth Semester**

**B. Sc. Hospital & Health Information Administration**

**Examination (Month/year)**

**PAPER-II**

## Hospital Accounting and Finance

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

**1. Long Answer (Attempt any two)** **2X15 = 30**

A. Describe about fundamentals of Financial Accounting?

B. Describe about Accounting Process?

C. Explain Generally Accepted Accounting Principles?

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A. Describe Capital and Revenue transactions.

B. What are the Fundamentals of Cost & Management Accounting?

C. Describe National health spending?

**3. Short notes (Any four)** **4X5 = 20**

A. Balance Sheet

B. LIFO, FIFO

C. Ledger account

D. Insurance

E. Depreciation

**MODEL PAPER**

**B. Sc. H&HIA Semester VI**

**BSC1323S603T** **HI&TPA-III**

**Sixth Semester**

**B. Sc. Hospital & Health Information Administration**

**Examination (Month/year)**

**PAPER-III**

## Health Insurance and TPA

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

**1. Long Answer (Attempt any two)** **2X15 = 30**

A. Describe Evolution and growth of Health insurance in India?

B. What are the Constitutional provisions in areas of Public Health?

C. Explain Infrastructure of the Health care system?

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A. Describe Health financing models of India.

B. What are the Challenges of access to Health care and Service Quality?

C. Describe Health insurance mechanisms & Financial Protection?

**3. Short notes (Any four)** **4X5 = 20**

A. Personal Accident products

B. LIFO, FIFO

C. CGHS - ESIS

D. RSBY

E. International Coverage products

**MODEL PAPER**

**B. Sc. H&HIA Semester VI**

**BSC1323S604T** **HRM-IV**

**Sixth Semester**

**B. Sc. Hospital & Health Information Administration**

**Examination (Month/year)**

**PAPER-IV**

## Human Resource Management

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

**1. Long Answer (Attempt any two)** **2X15 = 30**

A. Describe about management and leadership?

B. What are the Knowledge of labor/employment laws?

C. Explain the role of Human Resource Department in health organizations?

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A. Explain the Awareness of human resources structure and operations.

B. What are the Principles of human resources management?

C. Describe the Plan workforce education and training programs?

**3. Short notes (Any four)** **4X5 = 20**

A. Recruitment

B. Supervision

C. Retention

D. counseling

E. Monitor and benchmark performance standards

**MODEL PAPER**

**B. Sc. H&HIA Semester VI**

**BSC1323S605T** **IS-V**

**Sixth Semester**

**B. Sc. Hospital & Health Information Administration**

**Examination (Month/year)**

**PAPER-V**

## Information Security

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

**1. Long Answer (Attempt any two)** **2X15 = 30**

A. Explain the elements of information security?

B. What are the Information security roles and responsibilities?

C. Explain the role of Information security in healthcare organizations?

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A. Explain the Interdependencies of security controls.

B. What are the principles of Information Security?

C. Describe the societal and cultural factors of Information Security?

**3. Short notes (Any four)** **4X5 = 20**

A. Malicious Hacker

B. Threats and Vulnerabilities

C. Operational Security Rules

D. Errors and Omissions

E. Cost Considerations

**MODEL PAPER**

**B. Sc. H&HIA Semester VI**

**BSC1323S606T** **PM-VI**

**Sixth Semester**

**B. Sc. Hospital & Health Information Administration**

**Examination (Month/year)**

**PAPER-VI**

## Project Management

**Time: Three Hours**

**Maximum Marks: 70**

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

**1. Long Answer (Attempt any two)** **2X15 = 30**

A. Explain the importance of Project management in hospitals.

B. Explain Project Driven Vs Non-Project Driven organization.

C.Explain the role and responsibility of project manager.

**2. Short Essay (Attempt any Two)** **2X10 = 20**

A. Explain Product Vs Project Management.

B. Discuss about project analysis and management.

C. Describe Project Life Cycles.

**3. Short notes (Any four)** **4X5 = 20**

A. Project Planning

B. Planning cycle

C. Marketing management

D. Strategic project.

E. Project accounting